REMARKS

This is a response to an Office Action mailed July 2, 2002 (Office Action). The Office Action has been reviewed, and in view of the foregoing amendments and following comments, reconsideration and allowance of all of the claims pending in the application are respectfully requested. Appendix A, attached to this Response, represents the marked-up version of claim 19.

STATUS OF THE CLAIMS

Claims 1-20 are all the claims now pending in this application. Claim 20 has been added. Claims 1-2, 4, 7-8, 10, 13-14, and 16 stand rejected under 35 U. S. C. 103 (a) as allegedly being unpatentable over a U.S. patent (U.S. Patent Number 5,212,730) issued to Wheatley et al. ("Wheatley") in view of "Automatic Name Searching in Large Data Bases of International Names," 1985 authored by Hermansen ("Hermansen"). Claims 3, 9, and 15 stand rejected under 35 U. S. C. 103 (a) as allegedly being unpatentable over Wheatley in view of "The use of Phonological Information in Automatic Name Searching" 1997 authored by Lutz ("Lutz"). Claims 5, 6, 11, 12, 17, and 18 stand rejected under 35 U. S. C. 103 (a) as allegedly being unpatentable over Wheatley in view of Hemansen, and further in view of PC-NAS, 09/275,766 ("PC-NAS"). Claim 19 stand rejected under 35 U. S. C. 103 (a) as allegedly being unpatentable over Hermansen.

Rejection Under 35 U.S.C. §103(a)

The rejection of independent claims 1, 7, and 13 over Wheatley in view of Hermansen is traversed. Independent claim 1 recites "comparing said first and second pronunciation equivalent phonetic alphabet representations to determine a likelihood that said second name also designates the entity." At least this feature is not suggested or disclosed in any of Wheatley, Hermansen or their combination. The Office Action recites, "Wheatley discloses comparing the input proper name and phonetic feature representations" (*see* page 3 of Office Action) and refers to lines 44-47 in col. 8, lines 30-38 in col. 2, and lines 16-20 in col. 10 of

Wheatley. Wheatley discloses comparing speech signals to relevant Hidden-Markov Model (HMM) text derived recognition models. Each HMM text derived recognition model of Wheatley appears to be related to each set phonetic sequences for a name text (*see* column 7, lines 16-49 of Wheatley). Regarding the speech signal, the Office Action recites, "the speech signal teaches a phonetic representation of the input name" (*see* Page 3 of the Office Action). However, speech signals, as disclosed in Wheatley, are not phonetic sequences for a name text. Rather, Wheatley discloses generating phonetic feature sequences from a name text using Boltzmann machine and relating each set of phonetic feature sequences to a corresponding HMM text derived recognition model (*see* col.4, lines 26-54 of Wheatley). In addition, Wheatley discloses converting a spoken input name into speech signal, and comparing the speech signal with the HMM recognition models looking for a pattern match (*see* col. 4, lines 55-65). However, Wheatley does not disclose relating the speech signals to the phonetic feature sequences. Therefore, Wheatley does not teach or suggest that the speech signals are phonetic feature sequence representations as alleged by the Office Action. Therefore, Wheatley appears to be directed to comparing speech signals (which are not phonetic sequence representations) with phonetic sequence representations (i.e., HMM test derived recognition models). In contrast, the above recited claimed element relates to comparing one pronunciation equivalent phonetic alphabet representation with another pronunciation equivalent phonetic alphabet representation. Moreover, the purpose of the claimed invention is to compare a first proper name with a second proper name.

The Office Action relies on Hermansen for searching a database by using a string of characters. However, Hermansen does not disclose or suggest the feature of comparing said first and second pronunciation equivalent phonetic alphabet representations to determine a likelihood that said second name also designates the entity. Therefore, the combination of Wheatley and Hermansen remains deficient. Thus, Applicants respectfully submit that independent claim 1 is allowable over the cited references for at least the foregoing reasons.

Independent claim 7 recites the feature of "comparing said phonetic alphabet representation of said input proper name to said record keys to determine a likelihood that

said input proper name represents an entity associated with said record". The keys of the invention are related to International Phonetic Alphabet and they identify a set of phonetic equivalents (*see* Page 17 of the specification). At least this feature is not suggested or disclosed in any of Wheatley, Hermansen or their combination. The Office Action recites, "Wheatley discloses comparing the input proper name and phonetic feature representations" (*see* page 3 of Office Action) and refers to lines 44-47 in col. 8, lines 30-38 in col. 2, and lines 16-20 in col. 10 of Wheatley. Wheatley discloses comparing speech signals to relevant Hidden-Markov Model (HMM) text derived recognition models. Each HMM text derived recognition model of Wheatley appears to be related to each set phonetic sequences for a name text (*see* column 7, lines 16-49 of Wheatley). Regarding the speech signal, the Office Action recites, "the speech signal teaches a phonetic representation of the input name" (*see* Page 3 of the Office Action). However, speech signals, as disclosed in Wheatley, are not phonetic sequences for a name text. Rather, Wheatley discloses generating phonetic feature sequences from a name text using Boltzmann machine and relating each set of phonetic feature sequences to a corresponding HMM text derived recognition model (*see* col.4, lines 26-54 of Wheatley). In addition, Wheatley discloses converting a spoken input name into speech signal, and comparing the speech signal with the HMM recognition models looking for a pattern match (*see* col. 4, lines 55-65). However, Wheatley does not disclose relating the speech signals to the phonetic feature sequences. Therefore, Wheatley does not teach or suggest that the speech signals are phonetic feature sequence representations as alleged by the Office Action. Therefore, Wheatley appears to be directed to comparing speech signals (which are not phonetic sequence representations) with phonetic sequence representations (i.e., HMM test derived recognition models). In contrast, the claimed invention is directed to comparing one pronunciation equivalent phonetic alphabet representation with another pronunciation equivalent phonetic alphabet representation.

The Office Action admits that Wheatley is silent on processing the records remaining after the eliminating step and receiving data representing the input proper name as a string of characters. However, the Office Action relies on Hermansen for searching a database by using a string of characters and presenting a list of search results. However, Hermansen does not

disclose or suggest the feature of comparing said phonetic alphabet representation of said input proper name to said record keys to determine a likelihood that said input proper name represents an entity associated with said record. Therefore, the combination of Wheatley and Hermansen remains deficient. Thus, Applicants respectfully submit that independent claim 7 is allowable over the cited references for at least the foregoing reasons.

Independent claim 13 recites the feature of "comparison means associated with said database processing means and said phonetic processing means for comparing said pronunciation equivalent phonetic alphabet representation of said input proper name to said pronunciation equivalent phonetic alphabet representations of said proper names to determine, for each of said proper names, a likelihood that said input proper name represents the same entity as said proper name". At least this feature is not suggested or disclosed in any of Wheatley, Hermansen or their combination. The Office Action recites, "Wheatley discloses comparing the input proper name and phonetic feature representations" (*see* page 3 of Office Action) and refers to lines 44-47 in col. 8, lines 30-38 in col. 2, and lines 16-20 in col. 10 of Wheatley. Wheatley discloses comparing speech signals to relevant Hidden-Markov Model (HMM) text derived recognition models. Each HMM text derived recognition model of Wheatley appears to be related to each set phonetic sequences for a name text (*see* column 7, lines 16-49 of Wheatley). Regarding the speech signal, the Office Action recites, "the speech signal teaches a phonetic representation of the input name" (*see* Page 3 of the Office Action). However, speech signals, as disclosed in Wheatley, are not phonetic sequences for a name text. Rather, Wheatley discloses generating phonetic feature sequences from a name text using Boltzmann machine and relating each set of phonetic feature sequences to a corresponding HMM text derived recognition model (*see* col.4, lines 26-54 of Wheatley). In addition, Wheatley discloses converting a spoken input name into speech signal, and comparing the speech signal with the HMM recognition models looking for a pattern match (*see* col. 4, lines 55-65). However, Wheatley does not disclose relating the speech signals to the phonetic feature sequences. Therefore, Wheatley does not teach or suggest that the speech signals are phonetic feature sequence representations as alleged by the Office Action.

Therefore, Wheatley appears to be directed to comparing speech signals (which are not phonetic sequence representations) with phonetic sequence representations (i.e., HMM test derived recognition models). In contrast, the claimed invention is directed to comparing one pronunciation equivalent phonetic alphabet representation with another pronunciation equivalent phonetic alphabet representation.

The Office Action admits that Wheatley is silent on processing the records remaining after the eliminating step and receiving data representing the input proper name as a string of characters. However, the Office Action relies on Hermansen for searching a database by using a string of characters and presenting a list of search results. However, Hermansen does not disclose or suggest the feature of comparison means associated with said database processing means and said phonetic processing means for comparing said pronunciation equivalent phonetic alphabet representation of said input proper name to said pronunciation equivalent phonetic alphabet representations of said proper names to determine, for each of said proper names, a likelihood that said input proper name represents the same entity as said proper name. Therefore, the combination of Wheatley and Hermansen remains deficient. Thus, Applicants respectfully submit that independent claim 13 is allowable over the cited references for at least the foregoing reasons.

Claims 19 stand rejected under 35 U. S. C. 103 (a) as allegedly being unpatentable over Hermansen. Applicants respectfully traverse this rejection. In an effort to advance prosecution, however, applicants have amended independent claim19. The independent claim 19 has been amended to recite the feature of "the search strategy corresponds to matching pronunciation equivalent phonetic alphabet representations of each of the inputted proper name to pronunciation equivalent phonetic alphabet representations of the selected set of names stored in the database". At least this feature is not suggested or disclosed in Hermansen. Therefore, Applicants respectfully submit that independent claims 19 is allowable for at least the foregoing reasons.

New claim 20 recite the feature of "converting the text data representing said first and second names to first and second pronunciation equivalent phonetic alphabet representations, equivalent to at least two or more respective portions of said first and second names, and directly comparing said first and second pronunciation equivalent phonetic alphabet representations corresponding to two or more respective portions of said first and second names to determine a likelihood that said second name also designates the entity." At least these features are not suggested or disclosed in any cited references or their combinations. Therefore, Applicants respectfully submit that new independent claim 20 is allowable for at least the foregoing reasons.

Claims 2-6, 8-12, 14-18 each depend from one of independent claims 1, 7, and 13 and, therefore, contain the features recited in the independent claims. Therefore, Applicants respectfully submit that dependent claims 2-6, 8-12, 14-18 are also allowable for at least the foregoing reasons.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections, and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Attached hereto as Appendix A is a marked-up version of the changes made to the specification and/or claims by the current Amendment.

Favorable consideration of this application is respectfully requested.

Respectfully submitted,

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APPENDIX A

Claim amendments – Version with markings to show changes made

19. (*Amended*) A method for retrieving information from a database based on an input of a proper name, comprising the steps of:

identifying apparent surnames and given names that are part of the proper name;

determining the cultural origin or ethnicity of the inputted proper name;

selecting a search strategy based on the determined cultural origin or ethnicity of the proper name;

selecting a set of names that are stored in the database, wherein the selection is based on a culture-relevant key-indexing strategy; and

using an algorithm tailored according to the selected search strategy to evaluate which of the selected names match the proper name, wherein the search strategy corresponds to matching pronunciation equivalent phonetic alphabet representations of each of the inputted proper name to pronunciation equivalent phonetic alphabet representations of the selected set of names stored in the database.

20. (*New*) A computerized method of comparing proper names, comprising the steps of:

obtaining text data representing a first proper name that designates an entity and a second proper name, wherein the first proper name corresponds to an input name requiring comparison with other proper names;

converting the text data representing said first and second names to first and second pronunciation equivalent phonetic alphabet representations, equivalent to at least two or more respective portions of said first and second names;

directly comparing said first and second pronunciation equivalent phonetic alphabet representations corresponding to two or more respective portions of said first and second names to determine a likelihood that said second name also designates the entity; and

producing a signal indicating said likelihood that said second name designates the entity.